

# **ABSTRACT**

A method for process monitoring includes receiving a sample having a first layer that is at least partly conductive and a second layer formed over the first layer, following production of contact openings in the second layer. A beam of charged particles is directed along a beam axis that deviates substantially in angle from a normal to a surface of the sample, so as to irradiate one or more of the contact openings in each of a plurality of locations distributed over at least a region of the sample. A specimen current flowing through the first layer is measured in response to irradiation of the one or more of the contact openings at each of the plurality of locations. A map of at least the region of the sample is created, indicating the specimen current measured in response to the irradiation at the plurality of the locations.